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# World Population Shifts

## Boom or Doom?

Kevin F. McCarthy

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**POPULATION  
MATTERS**

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## PREFACE

A version of this lecture was given at the Rocco C. Siciliano Forum entitled *Considerations on the Status of the American Society* at the University of Utah on October 4, 1999. The purpose of the forum, which is now in its fifth year, is to enable participants to analyze and discuss some of "the country's most pressing, but least tractable issues."

Work on this documented briefing was supported by RAND's *Population Matters* project. The primary focus of *Population Matters* is synthesizing and communicating the findings and implications of existing research in ways that policy analysts and others will find accessible.

The *Population Matters* project is funded by grants from the William and Flora Hewlett Foundation, the David and Lucile Packard Foundation, and the Rockefeller Foundation. This document should be of interest to anyone concerned with demographic trends and issues and their implications for public policy. For a list of our publications, please see the inside back cover. For further information on the *Population Matters* project, contact

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## SUMMARY

The structure of world population growth is changing. The world's current population of roughly 6 billion is likely to grow by an additional billion people every 12 to 13 years. This average growth rate (1.4 percent) masks the fact that some parts of the world are growing much faster than others. Developed countries are growing at less than 0.3 percent per year, while the rest of the world is growing almost six times that fast. These demographic differences, as well as widening economic differences, between the developed and less-developed world are increasing the flow of people toward the developed world. How the developed world responds to these immigration pressures will largely determine whether such pressures become a precursor to boom or doom.

This presentation examines population shifts in different parts of the world, their effects on the flow of people across borders, and potential responses by the developed world to growing immigration pressures.

### **Demographic Trends in Different Regions of the World**

Demographers have characterized the history of population growth in Western Europe in terms of a model of the "demographic transition." The model provides a useful framework for understanding population trends in the rest of the world as well. It charts the history of population growth into four stages, characterized primarily by different rates of births and deaths:

- Stage 1, which characterized the vast majority of human history, is marked by high death and high birth rates.
- Stage 2, which began in the West around 1800, starts with a decline in mortality rates as a result of improved living standards, better sanitation procedures, and, most recently, greater control of infectious diseases.
- Stage 3 starts with a decline in birth rates, primarily in response to social and behavioral change.
- Once sustained, lower fertility rates work their way through the age structure, birth and death rates balance each other out, and the population stops growing. This is Stage 4.

Once an equilibrium of low death and birth rates is reached, immigration becomes the principal driver of additional growth within countries.

The major regions of the world are at different demographic stages. Sub-Saharan Africa, for example, is the world's fastest-growing region, despite its high death rates. Nearly 60 percent of the population lives in countries that are either in Stage 1 or Stage 2. The Middle East is the second fastest-growing

region, somewhat further along in the transition than Africa. Asia presents a more bipolar picture: About half the population lives in countries that have reached Stage 4; the other half are in countries still at some earlier stage. China and India, for example, where 40 percent of the world's population lives, are at different ends of the transition. China, despite its relatively low level of economic development, is nearing Stage 4. India, as a whole, is still in Stage 2.

Latin America, on the other hand, is largely at Stage 3. Fertility rates there have dropped dramatically, and the principal reason for continued population growth is the youthful age structure. The behavioral changes necessary for progression to Stage 4 have largely occurred.

North America and Europe, both in Stage 4, are at or below replacement fertility levels, but North America continues to experience population growth as a result of immigration. Most of Western Europe is actually losing population. Europe's resistance to immigration is likely to have a major impact on its demographic—and economic—future.

These population trends are likely to continue into the foreseeable future. Regions at the early stages of the transition will generate most of the world's population growth over the next 25 years. The developed world will experience either very modest growth or population loss.

### **Immigration Pressures**

The low fertility rates characteristic of Stage 4 produce a rapid aging of the population. By 2025, for example, the median age of the U.S. population will rise from 34 to 43 years. In Germany, it will go up from 39 to 50 years. One-quarter of the German population will be over 65 and the number of new labor-force entrants will decline by one-third. These trends raise some crucial questions:

- With fewer working-age people, how will such a society support increasing numbers of older people?
- Where will new labor-force entrants come from?
- How can society generate the public investment needed to educate the young and provide health care for the elderly?

These issues, as well as the growing economic inequality among nations, will increase pressures for immigration from less-developed nations to the developed world. Yet only a handful of developed countries admit immigrants in any substantial numbers. Several European countries admit a small number of refugees for humanitarian reasons, but restrict entry for other immigrants. Japan, which faces the prospect of losing a quarter of its population over the next 25 years, makes little allowance for immigrants.

Although it seems unlikely that many of these countries might adopt more liberalized immigration policies any time soon given current political opposition to immigration, this picture may well change. Among the possible options that might be considered are a new "guest worker" program and regional immigration arrangements, comparable to special trade agreements, that would allow reciprocal flows of goods and people across certain borders.

The U.S. immigration debate offers some interesting lessons for other countries. In the United States, which has a history and tradition of welcoming immigrants, immigrants are currently responsible for about two-thirds of total population growth. Various studies have documented that immigration has both costs and benefits and that these effects depend upon the skill levels of the immigrants and the state of the economy. Moreover, the public debate about these effects is complicated by the fact that there are interest groups on every conceivable side of the issues. As a result, the debate continues on the key policy issues: (1) how many to admit, (2) whom to admit, and (3) under what conditions.

### **Two Wild Cards**

Further complicating the public debate about immigration are increasingly skeptical attitudes about technological change and the environmental effects of economic and demographic growth. These issues are "wild cards" because they appear to represent reversals in what have been long-held attitudes about the desirability of technological change and economic growth and it is not clear how they will influence the immigration debate. The first is the view that technological change poses a threat to the environment rather than a means of coping with population growth and economic development. The second is the view that economic growth inevitably harms the environment and that both population growth and economic development should be rejected because environmental degradation is too high a price to pay for them.

The prevalence of such attitudes will make it more difficult for the West to embrace population increase through immigration in the years to come.

The growing pressure on the developed world to receive immigrants from the less-developed world will be difficult to resolve. It raises issues that go well beyond demographics; in fact, the debate pushes us to define the kind of society we wish to build. Since public opinion is ill-informed about both population growth and the costs and benefits of immigration, it will take strong leadership to frame these issues so that the political process serves the public interest. In any case, both the public and its leaders need to be better informed about the issues and the challenges they pose.

## ACKNOWLEDGMENTS

I am grateful to the many people who provided invaluable assistance in the preparation of this report. I am particularly indebted to Rocco C. Siciliano who invited me to deliver the lecture on which this paper is based at the third annual Rocco C. Siciliano Forum at the College of Social and Behavioral Sciences at the University of Utah. Rocco has shared his interest in immigration issues and his friendship with me since his leadership in the California Roundtable in 1986. Special thanks are also due to the College of Social and Behavioral Sciences at the university for their support and assistance. I would also like to thank Julie DaVanzo for her support in transforming the lecture into this paper. I also owe thanks to my colleague, Laura Zakaras, who was instrumental in that process. Thanks are also due to Peter Morrison who reviewed the original draft and provided many useful comments. Finally, I would like to thank Lisa Lewis and Judy Rohloff for all their assistance.



## **World Population Shifts: Boom or Doom?**

**Kevin F. McCarthy**  
**October 4, 1999**

My topic is the dynamics of world population growth. I will assert that both the dynamic and the patterns of growth are changing and that this will have consequences for both the developed and the less-developed world. The American public remains largely uninformed of these trends. In fact, conventional wisdom about population growth is tied more to the way things were 50 years ago than to what is happening in the world today.

Indeed, the central feature of today's world is its growing interdependence—a by-product of an increasingly complex system of exchanges of trade, capital, ideas, and technology. These exchanges, collectively referred to as globalization, have brought tremendous benefits to the world but have also constrained the ability of all countries to act independently. Developments almost anywhere in the world along a wide variety of dimensions, including demographic developments, will have repercussions elsewhere. How the governments of the world react to the demographic phenomena described here will go a long way toward determining whether these world population shifts become a precursor to boom or doom.

## **Thesis**

- **Interdependence and global exchanges are key to world's political and economic future**
- **Attention is mostly focused on economics, communications, and technology flows**
- **But pressures for demographic flows are certain to grow**
- **How these pressures are resolved will be key**

Much has been written about interdependence. The focus has typically been on economics, trade and investment, communications, and technology flows. But these are not the only global flows. As a demographer, I'm just as aware of the increasing global flows of people. Indeed, immigration pressures are already being felt in the developed world from the less-developed world and they will almost certainly increase. Although it is unclear how the developed world will respond to those pressures, how they do so will play a central role in shaping the 21st century.

## Overview

- • **World population today: where we stand and how we got there**
- **The new dynamic for growth and its implications**
- **The U.S. immigration debate**
- **Two wild cards: attitudes toward growth and technological change**
- **Conclusions**

Here is an overview of my presentation.

First, I will describe where we are today demographically and how we got there. I will focus on differences across regions and countries that are at different stages of economic development.

Second, I will identify how the dynamic of population growth has changed and why we are likely to see increasing pressures for migration from the less-developed to the developed world. I will also discuss how the developed world might react to these pressures.

Third, I will talk about the immigration policy debate in the United States. This topic is particularly instructive given the United States' role as the leading immigrant-receiving country in the world.

Fourth, I will introduce two trends in the developed world—attitudes toward growth and technological change—that I suspect will function as wild cards in the debate.

Finally, I will offer my conclusions—or at least considerations—about these issues.

## Where Are We Now?

- **Current world population = 6 billion**
- **Adding 1 billion new people every 12–13 years (1.4 percent/year)**
- **Growth rate has begun to slow**
- **Projections suggest approximately 9 billion by 2050**
- **Rapid growth is a very recent phenomenon**

The current world population is about 6 billion. This is as large as it has ever been. We are currently growing at about 1.4 percent per year, which translates into an additional billion people in the next 12 to 13 years. This average growth rate masks the fact that some parts of the world are growing much faster than others. The developed countries, for example, are growing at less than 0.3 percent per year, while the rest of the world is growing almost six times as fast. Although the overall world growth rate is obviously quite rapid, it represents a decline from the peak reached in the 1960s of about 2 percent per year. Had growth at that rate continued, the world's population would be doubling every 35 years instead of every 55 years, as it is today.

If the world's population growth rate continues to slow, demographers predict that the world's population will peak at about 9.3 billion sometime in the middle of this century. However, you should not place any bets on such long-term projections—they are notoriously suspect.

It is also important to keep in mind that extremely rapid population growth is a very recent phenomenon indeed. Humans have been on the earth for something like 2.5 million years, but the world did not reach a population of 1 billion until about 1800 and it did not reach 3 billion until about 1960. This means that about half of the historical growth in the world's population has occurred in the past 30 or 40 years.

## How Did We Get There?

- **Theory of “demographic transition”**
- **Describes the historical experience of growth in West**
  - **how birth and death rates interact to create growth**
  - **how ordered series of changes in vital rates trigger growth**
  - **how migration affects growth**

Demographers characterize the history of population growth as a “demographic transition.” It’s not so much a theory as it is a description of the historical pattern of population growth in Western Europe. However, as we shall see, it also offers a reasonable account of what is happening in the rest of the world.

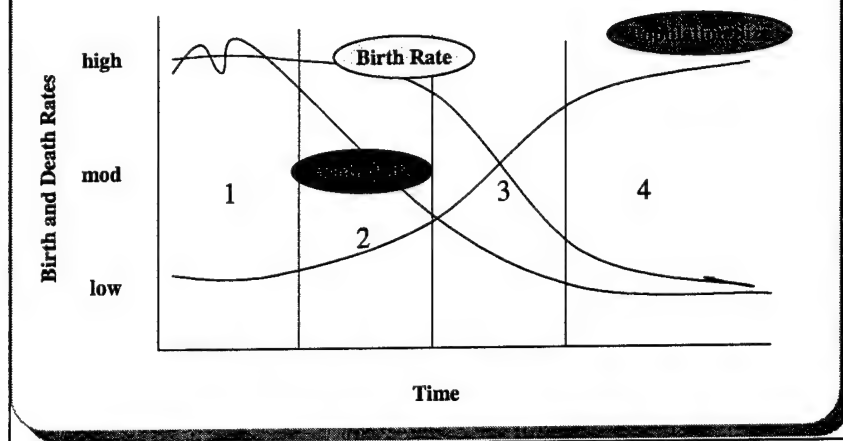
The demographic transition encompasses three aspects of population growth:

First, it describes how the separate factors that create growth (primarily births and deaths) interact.

Second, it explains the pattern of growth in terms of an ordered sequence of changes in the death and birth rates that trigger growth.

Third, it suggests, by implication, how migration affects the growth equation. The following chart illustrates how the demographic transition operates.

## Model of Demographic Transition



The demographic transition is conceptually quite simple. This figure presents a model of the demographic transition that compares patterns of change in birth and death rates in terms of a series of ordered stages and indicates how these shifts drive total population size.

For the vast majority of human history, the population was in Stage 1. Death rates fluctuated up and down and the birth rate (roughly double the current rate) was relatively constant and at approximately the same level as the death rate. Life in Stage 1 was—to use Hobbes' phrase—nasty, brutish, and short. High fertility rates also assured those few who reached old age of someone to support them. Fertility rates of six and seven children per woman were the norm, and kept pace with the shortness of life. Migration was not a factor since most people never willingly journeyed far from where they were born.

In the West around 1800, this pattern evolved first as mortality rates began a prolonged decline. Stage 2 of the transition began earlier in some countries than in others, but eventually began to spread with greater control of infectious diseases—the real killer in countries with high death rates.

Initially, the drop in death rates was not synchronized with a drop in birth rates, so the result was population growth. But a further development triggered Stage 3: Birth rates also began to decline as the number of children needed to reach a desired family size declined because of drops in childhood mortality.

The initial decline in fertility, however, did not fully halt population growth. A key aspect of the demographic transition is that population growth perpetuates

itself through structural mechanisms. To understand this effect, it is important to recognize that the number of births in a society is a product of both the number of children each woman bears and the number of women of childbearing age.

The initial decline in birth rates was a by-product of the desire for smaller families. The legacy of past growth, however, is an age structure heavily weighted with young adults (and children who will enter adulthood)—all prospective childbearers. With a disproportionate share of the people in the childbearing years, even after fertility rates decline, population will grow because the age structure is still conducive to a large number of births. It is not until the effects of sustained low fertility work their way through the age structure that the total number of births reaches low levels. This phenomenon is often referred to as the “momentum” of population growth and can take decades to play itself out.

It takes a long time for births to reach parity with deaths, but if these trends continue they eventually lead to a new equilibrium in which birth and death rates balance each other out. At that point, population stops growing. This is Stage 4.

## **Key Contributions of the Model**

- **Explains the dynamics of growth that “fit” the empirical reality**
- **Provides basis for projecting future growth**
- **Highlights the structural and behavioral factors underlying these changes**
- **Suggests how migration can affect population growth**

Although based on the European experience, this model of the demographic transition is a useful point of departure for understanding the overall pattern of population growth in both the developed and less-developed world.

However, the pace of decline in mortality—and the underlying causes—differed sharply between Western Europe and the United States on the one hand and the less-developed world on the other. In the West, the decline in mortality and subsequent drop in fertility were tied to gradual improvements in standards of living and took close to 100 years. Since these declines—first in mortality and later in fertility—were relatively gradual, the pace of growth was also gradual.

In the developing countries, however, mortality declined more rapidly—within the space of a decade or two—as a result of the rapid introduction of medical technology and improved sanitation procedures. Because mortality rates declined much more quickly than fertility rates, the pace of population growth in the less-developed world has been much more rapid.

By identifying the mechanics behind the transition (first a decline in death rates followed, with a lag, by a drop in birth rates), the model provides a benchmark for assessing where countries stand today and where they may be headed in the future. Although the model does not predict how large the population of any country will be or when it will reach that level, it does point to the factors that will drive that transition. The model highlights, for example, that the movement from Stage 1 to Stage 2 is triggered by structural change while the movement from Stage 3 to Stage 4 is predicated on behavioral change. In sum, the model



suggests that the demographic transition begins with structural changes in society but requires behavioral changes to complete the transition.

Finally, the model provides a framework for understanding the role migration can play in the transition. Once a new equilibrium of low death and birth rates is reached, immigration becomes more central as a driving force for additional growth. It is important to note, for example, that the demographic transition in Western Europe was also the period of the great waves of immigration from Europe to North America. Through this migration, Europe exported its surplus population, which the United States readily absorbed at a time when it needed all the laborers it could get. These early waves of European immigration thus served as a precursor to the surge of immigration from Mexico and the rest of the less-developed world today.

## **Structural Changes**

- **Sustained economic growth and improved living conditions**
- **Improved sanitation, medical knowledge, and diets**
- **Increased access to education and technology**
- **Growing opportunities for women**
- **Improved transportation and communication**

What important structural changes explain population change?

Transition theory identifies the drop in death rates as the trigger for growth. What activates that drop, according to the theory, are broad societal changes. Although we clearly had periods of economic growth prior to the 18th century, the sustained economic growth that has so transformed the world in the past two centuries really began in about 1800. This growth set in motion a period of slow but steady improvements in living conditions and sanitation practices, medical knowledge, and human diets that eventually reduced mortality levels. This unfolding contrasts sharply with what has happened in the less-developed world where it was technology imported from the West that caused mortality to drop—and far more suddenly.

Rising living standards, increases in education, and, later, access to modern techniques of birth control provided both the incentive and the means to control family size. Improving child survival rates, in turn, removed the need to compensate for high rates of infant mortality to reach desired family size.

More recently, greater labor-force participation by women has led to delayed marriage and childbearing, which also reduces fertility. And finally, dramatic improvements in transportation and communication have lowered the cost of moving, both financial and psychic, and have increased awareness of the conditions outside a person's place of birth and, thus, the motivation for migration.

Structural changes, then, are what precipitate the demographic transition. But behavioral change is what advances the transition to its fourth and final stage.

## Behavioral Changes

- **Predictability/controllability of individual behavior**
- **View of childbearing**
- **Importance of work/economic mobility**
- **Attitudes toward women's role**

No behavioral change is more important than the shift away from a fatalistic view of demographic behavior in which one views life's circumstances as a matter of fate rather than as a consequence of free choice. This shift allows individuals to consider how many children to have, what kind of lifestyle to lead, and where they want to live. That is a dramatic difference.

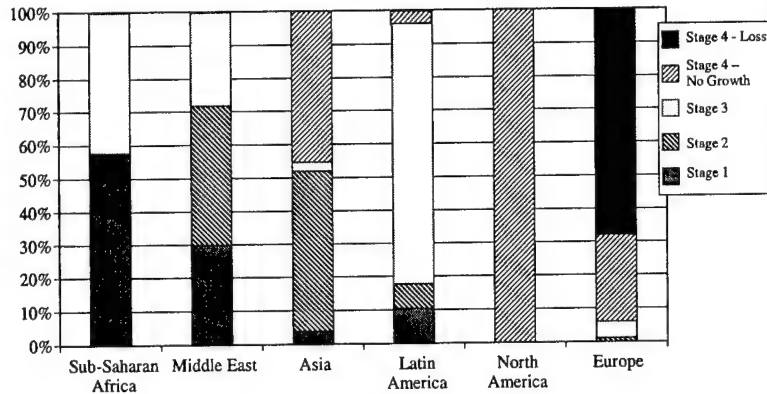
A related change involves views of childbearing. In the early stages of the transition, large families represent a form of social security—a conscious investment for the future. People tended to have many children to help with the labor of the family and to provide for the elderly when they could no longer work. In later stages of the transition, desired family sizes decline and increasing emphasis is placed not on having many children but rather on having a few well-educated ones—“quality” rather than quantity.

That is a profound attitudinal shift. Extended far enough, it transmogrifies into a view (apparent in some societies today) of childbearing as an *obstacle* to self-fulfillment. Indeed, in some European countries, up to one-third of the population views childbearing that way. And the reality today is that many couples in Germany, Italy, and Spain refrain from childbearing. Their populations are 80–88 percent adult. Indeed, total fertility rates in all three of these countries are 1.3 children per woman, well below the level required for replacement, which is 2.1. The increasing importance of work and economic mobility in modern society, as well as a profoundly transformed view of

women's roles, have promoted these changes. Although most pronounced in the West, these shifting attitudes are becoming apparent in other regions, including the developing world.

Mexico, often considered a prototypical high-fertility society, is a good example. Desired family sizes are declining, modern contraceptive practices are becoming more prevalent, and the percentage of women in the labor force is increasing. Recent projections suggest that Mexico will reach replacement-level fertility, defined as 2.1 children per woman—or Stage 4—in about 2025.

## Demographic Stages of Different Regions of the World



Source: U.S. Bureau of Census, International Data Base

This slide indicates where the major regions of the world stand in terms of the four stages of the model. Because some regions in Stage 4 are currently experiencing little or no growth while others are actually losing population, we place Stage 4 countries into two categories.

Remember that death rates in Stage 1 often fluctuate before they begin a sustained decline. In this case, populations are often growing but will not really face major growth pressures until Stage 2.

The fastest-growing region is sub-Saharan Africa, despite the fact that many countries in this region still have high death rates. Nearly 60 percent of the population in this region lives in countries that are either in Stage 1 or Stage 2. Birth rates are very high and, although there are signs that they are dropping in several countries, they remain very high by the standards of the demographic transition.

The Middle East, the second fastest-growing region, is somewhat further along in the transition than Africa, but most countries here are still concentrated in the early stages. Nearly one-third of the population in the region, though, lives in countries that have reached Stage 3, where fertility rates have declined but youthful age structures perpetuate continued growth.

Asia presents a much more bipolar picture. About half of its population lives in countries that reached Stage 4; the other half resides in countries still at some earlier stage. The pattern here reflects the two largest Asian countries, China and India, where 40 percent of the world's population is located. Moreover, these two countries are at very different stages of the transition. China, despite its relatively low level of economic development, is in the advanced stages of the transition (nearing Stage 4). India, as a whole, is still in Stage 2.

More than 80 percent of Latin Americans live in countries that are at Stage 3. Fertility rates in Latin America have dropped dramatically, and the principal reason for their continued growth is the youthful age structure. The behavioral changes necessary for progression through the transition have mostly occurred, foreshadowing continued advance into Stage 4 in coming years.

The patterns in two parts of the developed world, North America and Europe, are very different. Both areas are at or below replacement fertility levels, yet North America (unlike Europe) continues to experience population growth, because immigration offsets low fertility. Approximately 70 percent of Europeans live in countries that are actually losing population, a phenomenon that may be a symptom of the advanced period of Stage 4—or some new period.

The big difference between these regions is immigration. North America allows immigrants; Europe, by and large, does not. This difference in governmental policy will have a major impact on their demographic—and economic—futures.

A recent publication by the United Nations, *Replacement Migration: Is It a Solution to Declining and Aging Populations?* (ESA/P/WP.160, 21 March 2000), addresses this problem.

## Population Trends Will Vary Widely

Region	Population (in millions)		% Change	Share of Growth (%)
	1998	2025		
Sub-Sahara	617	1,095	78	24
Middle East	307	523	70	11
Asia	3,358	4,398	31	52
Latin America	508	695	37	9
Europe	798	785	-1.6	0
North America	301	374	24	4

Regions still at the early stages of the transition are likely to generate a disproportionate share of worldwide population growth over the next quarter century. The developed world, North America and Europe, will experience either very modest growth or population loss, depending upon future levels of immigration.

But this view of the future is complicated by several uncertainties. The AIDS epidemic has had dramatic effects, especially in sub-Saharan Africa. While AIDS has indeed taken a dreadful toll, it is not expected to alter the overall dynamic of population growth in Africa so much as slow the rate of growth.

Will the developed world continue its pattern—or might we see some new baby boom in the future? Several governments in the developed world have tried to encourage higher fertility, but without much success. In fact, the only major governmental intervention in reproductive behavior that has been successful is in China, and its intended effect has been to lower fertility.

Thus, we are left with the prospect that only governmental policy with regard to immigration might significantly alter this projected future.

## Overview

- World population today: where we stand and how we got there
- • The new dynamic for growth and its implications
- The U.S. immigration debate
- Two wild cards: attitudes toward growth and technological change
- Conclusions

How might such interventions get triggered? The pressures for immigration from the less-developed to the developed world will likely increase in the future. The reasons for this are both demographic and economic. That will mean a new dynamic for growth and its implications, to which I now turn.



## **Demographic Pressures**

- **Age structure—the most important demographic feature of a population**
- **Low fertility “ages” the population**
- **Without migration, slow-growth countries face rapid aging of population**
- **Aging will raise three critical issues:**
  - **how to support senior population**
  - **where to find new labor-force entrants**
  - **public investment**

The demographic pressure for increasing immigration revolves around the age structure—that is, how the population is distributed by age. Let me emphasize that no feature of a population's demography is more important than its age structure. Virtually all demographic phenomena (births, deaths, marriage, and migration, etc.) as well as many economic behaviors (entering and retiring from the labor force as well as such major consumption decisions as home buying) are “age-graded.” That is, they typically occur within certain age ranges. Just think about how America's social and economic structures over the last 40 or 50 years have been shaped by adjusting to the baby boom as we went from a youth-oriented society to one in which baby boomers are adjusting to bifocals and formulating retirement plans.

What may be surprising, however, is that the most important determinant of a population's age structure is fertility—not life expectancy. Essentially, the age structure is much more a function of the relative sizes of particular birth cohorts than of how long people live. Countries with low fertility face rapid aging, unless migration replenishes young adults in the population.

An aging population will raise three critical issues for countries with slow-growing, stable, or declining populations:

1. How will an aging population support increasing numbers of older people with fewer working-age people?

The United States is already facing the tightening demographic grip of an aging population with its social security system—and the baby boomers have

not even reached retirement age. This predicament will intensify in the future and will be even more pronounced in other countries, such as Japan, where it is materializing more rapidly.

## 2. Where will new labor-force entrants come from?

Economic growth has long been predicated on each new group of labor-force entrants being larger than the group that preceded it. Although population growth may not be necessary for economic growth, a shrinking labor force, particularly if the decline is pronounced, will pose serious challenges for the economy. Economies can adjust, but not smoothly or without political consequences.

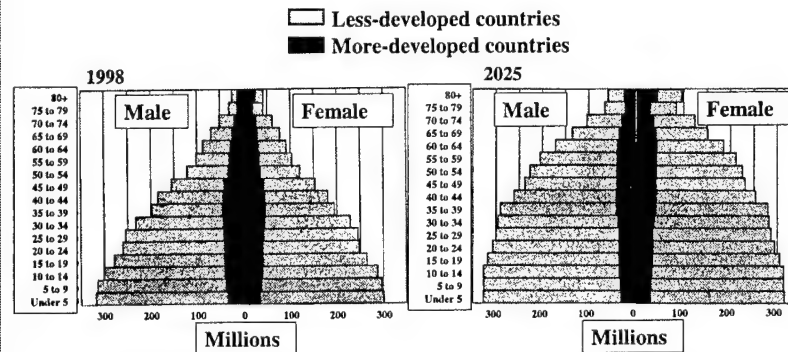
## 3. How does it provide for dependent populations?

An economy's ability to support public investment is directly related to the relative sizes of its dependent (the young and the old) and working populations. As the populations age, societies will have fewer workers to support dependents (particularly those in the retirement years), and that means they will move toward either more (or higher) taxes or lower service levels. Questions about whether to invest in education for the young or health care for the old will become more acute.

These issues will be brought dramatically to the fore as the population of the developed world ages.

## Comparison of Age Structures

### Population by age, sex, and development



Source: U.S. Bureau of the Census, International Data Base.

This chart shows population pyramids for developed and less-developed countries for 1998 and 2025. Demographers use these pyramids (which show the distribution of the population classified by age and gender) to illustrate the age structure of a population. There are, for example, approximately 325 million males under the age of 5 today in the less-developed world and fewer than 50 million in the more-developed countries.

Note how the age structures differ between developed and less-developed countries. In the developing world those at the bottom of the pyramid—the youngest age cohorts—are most numerous. In the developed world, by contrast, cohorts in their mid-30s and early 40s are most numerous.

Given these differences, it may surprise you to know that 150 years ago the developed world looked like the developing world today. However, as fertility declined and the sizes of succeeding cohorts became more and more alike, the base of the pyramid narrowed relative to the rest of the pyramid. In effect, the average age of the population rose dramatically.

What can we expect in the future—say by 2025? Assuming fertility in the less-developed world drops, the largest cohort will still be found at the base of the pyramid, but the difference will be nowhere near as dramatic as it is today. In the developed world, the largest age cohort will be 55 to 59—nearing what we currently consider retirement age.

To provide some concrete examples, the median age of the German population today is 39 years. In 2025, it will be 50. In the United States, the median age

will rise from 34 to 43 years. In addition, over one-quarter of the German population will be over 65 and the number of new labor-force entrants will decline by one-third. As a result, many of these countries may be desperate to find new workers, just as many European countries were in the 1950s as they sought to rebuild their economies after World War II. This pattern seems certain to raise the three critical issues listed on pages 17–18.

## **Structural Pressures**

- **Persistent economic inequality will increase political and security pressures on developed countries**
- **Free flows of trade and capital will make it difficult to exclude people**
- **CNN effect**

Besides these demographic pressures, economic factors will create pressure for immigration to increase.

One of the most profound challenges facing the world today is the growing inequality among nations. Although some developing countries are on the road to sustained economic growth, most of the world's population lives in dire poverty, often in what are euphemistically called "failed states," where population growth is rapid, economic growth fitful at best, and corruption rampant. The growing gap between rich and poor countries is increasingly evident in international forums dealing with global issues. Consider, for example, the recent disruptions at the World Trade Organization meeting in Seattle.

The polarization of the planet into the haves and the have-nots could very well imperil the trend toward globalization that has been such a boon to economic growth and interdependence. Moreover, to the extent that current international flows of trade, capital, and ideas are predicated on all nations having a continued stake in these exchanges, based on the principle of comparative advantage, then poor nations could well insist on reciprocal flows of the one resource they have in abundance: people. They could say, "Unless you take more people, we will not take your goods."

There is also what I call the "CNN effect." Consider the responses by Americans and Europeans to natural and man-made disasters throughout the world. It has become harder for affluent societies to ignore the human suffering that persists around the globe. Instead, an increasing proportion of the population is calling upon their governments to do something to ameliorate the conditions that are creating such suffering.

## **Possible Responses by Developed Countries**

- **Current policies are restrictionist**
- **Options:**
  - **strict border enforcement while attempting to reduce demand**
  - **temporary worker programs**
  - **more-liberal policies**
  - **regional arrangements**

What are the possible responses by the developed world to pressures for immigration?

Currently, only a handful of developed countries admit immigrants in any substantial numbers. Several European countries do have refugee policies, but they admit only a small number of refugees and those for humanitarian not economic reasons. Japan, which faces the prospect of its population declining from 120 to 90 million over the next quarter century, makes little allowance for immigrants at all. Consider the implications if Japan had only three-fourths of its current population. Its economic preeminence could well be threatened, at which point calls for a more liberalized immigration policy might well be heard.

Weighing the contemporary political situation, one cannot realistically expect the Europeans to admit large numbers of immigrants. Many of these countries have strident anti-immigrant parties that staunchly oppose any liberalization of policy. On the other hand, remember the postwar period when the Europeans invited millions of "gastarbeiters" or guest workers in response to labor shortages. The United States initiated its own guest worker policy, the Bracero Agreements, with Mexico during World War II for very similar reasons. Even the oil-rich countries of the Middle East imported large numbers of Arabs and others from poor countries after the oil boom. History is replete with examples of countries liberalizing their immigration policies in the face of economic necessity.

Were the European countries to change their policies, what might they consider doing? It seems to me that the preferred option would be some combination

of stricter border enforcement and humanitarian aid to decrease the demand for entry. However, for a variety of reasons—including the ineffectiveness of most humanitarian aid programs, the fact that most foreign aid or economic assistance programs really do not deal with the underlying structural conditions, and the unwillingness of governments to resist the pressures of their own domestic interest groups—these policies are not likely to provide the solution. Moreover, border enforcement as the primary tool for solving immigration problems generally has not worked.

Temporary guest worker programs like the “gastarbeiter” and “bracero” programs are possible; however, it is very difficult to enforce these programs and to prevent family members from joining the workers. Such programs can also create a second-class resident category that may be anathema to democratic states.

Another option is to move toward a regional immigration arrangement. Many countries today, for example, have joined in special trade agreements to facilitate economic exchanges among regional partners. Consider the European Union, the Mercusur Agreement in Latin America, and the North American Free Trade Agreement. Might we see some comparable agreements with regard to reciprocal flows of goods and population between developed and underdeveloped countries organized along similar regional grounds (between, for example, the United States and Latin America, or parts of Europe and North Africa)? Whatever agreements or policies are considered, they seem certain to involve multilateral responses.

In sum, the developed countries are not likely to be able to deal with their needs for more labor without a change in their current immigration policies, a development that seems politically infeasible for the time being.

## Potential Implications

- **Definitions of sovereignty**
- **Impact on trade and globalization**
- **National identity and culture**
- **Domestic politics**
- **Security considerations**

None of these options offers a simple solution. Whatever policies are considered, they are certain to provoke opposition among segments of the electorate, at least in the developed world. There may be several grounds for these objections.

First, most developed countries view control over their borders as an essential element of national sovereignty. Since any resolution to immigration issues in the European context will involve a multilateral response with an attendant surrender of sovereignty, they are likely to engender political opposition on sovereignty grounds.

Second, as suggested above, if the developed world refuses to open its borders, this policy could have negative ramifications for the liberalized system of trade and globalization.

Third, one prominent rationale for restrictive policies today is an argument based on national identity and culture. Most European countries, for example, base citizenship on blood (ethnicity) rather than nativity (country of birth), as we do in the United States. This difference reflects the social reality that most European countries are ethnically homogeneous and view immigration as a threat to their national identities.

Fourth, domestic politics will be an important factor. Any change that involves bringing in foreigners to take jobs that native workers might want is likely to engender opposition. (We see this now in the United States with scientific manpower.) However, if immigration policies remain restrictive, countries facing labor shortages will almost certainly be required to modify their labor-



force practices (e.g., raise the retirement age of workers) to reflect the fact that people now live longer. If governments respond in this vein, the results will be mixed, generating "winners" and "losers."

A final concern involves the security implications of allowing large numbers of immigrants to enter a country. To the extent that immigrants pursue the interests of their native countries by political or other means, they may pose a threat to the host country. A recent RAND report, *The Security Dynamics of Demographic Factors* (Brian Nichiporuk, MR-1088-WFHF/RF/DLPF/A, Santa Monica, Calif.: RAND, 2000), discusses a broader range of ways in which demographic factors can influence the national security environment.

## **Overview**

- **World population today: where we stand and how we got there**
- **The new dynamic for growth and its implications**
- • **The U.S. immigration debate**
- **Two wild cards: attitudes toward growth and technological change**
- **Conclusions**

Given the complexity of these issues and the fact that most developed countries have no history of immigration, it may be instructive to look at the current debate about immigration policy in the United States.

## **Using the United States as a Model**

- **The United States is one of a handful of developed countries with a history of immigration**
- **Two-thirds of current U.S. population growth is due to immigration**
- **Ongoing debate about U.S. policy**
- **Key policy questions**
  - **how many to admit?**
  - **whom to admit?**
  - **under what conditions?**

The United States is one of a handful of developed countries (Canada and Australia are two others) with a history and tradition of welcoming immigrants. As such, it may provide a useful barometer to the shape of the policy debate elsewhere.

Approximately two-thirds of the current population growth in the United States results from immigration. Immigrants add to the population not only directly, one by one, but they boost population growth indirectly by bearing children. (Most immigrants are of childbearing age, and their fertility rates are generally higher than that of natives.) Direct and indirect sources of growth are equally influential. Current immigration levels are high compared with their historical levels. Indeed, the number of immigrants entering the country today rivals that at the turn of the 20th century.

Immigration is regionally concentrated. Close to three-quarters of the immigrants in the United States live in six states—California, New York, Florida, Illinois, New Jersey, and Texas. If current levels of immigration continue, there will probably be higher percentages in other states as well. The debate about immigration in the United States centers on three key policy questions: (1) how many to admit, (2) whom to admit, and (3) under what conditions.

## **Central Questions About Immigration**

- **Economic effects**
  - aggregate
  - distributional
- **Public sector effects**
  - contribution to, or drain on, health care, education, and other public services?
- **Assimilation**
  - economic
  - social
- **Externalities**

The debate about these three questions revolves around the economic and social effects of immigration. The economic effects of immigration are considered in terms of aggregate and distributional effects.

In aggregate perspective, the central question is whether immigrants as a whole are a net drain or a net benefit to the economy. The evidence suggests a net benefit, although a very small one. At one time, the question of net benefits was the central issue in the immigration debate, but it has recently been given less attention. As labor markets become increasingly tight because of existing or potential labor shortages, this may again become a more important issue.

Today, the distributional effects of immigration—i.e., who wins and who loses from immigration—loom larger. And there surely are winners and losers. The winners are the employers of immigrants and those who consume the services immigrants supply at low wages. The losers are those who must compete with immigrants in the labor market.

A related question concerns the effects of immigrants on the public sector, where the two public services most used by immigrants are education and health care. Specifically, do immigrants contribute more to the public coffers than they draw in services? The answer is: It depends. Immigrants are not all of one kind. Highly skilled immigrants contribute more in taxes than do less-skilled ones—which does not distinguish them from native-born Americans. There are also differences in the net contributions to the public coffers that relate to the legal status of immigrants. Refugees are entitled to a range of resources and services that other immigrants are not.

Further questions pertain to the integration and assimilation of immigrants into the economy. Will today's immigrants experience the upward mobility of their predecessors, or will they remain trapped in low-wage, low-skill jobs? The historical evidence suggests that immigrants have indeed been upwardly mobile; more recent evidence, however, indicates that low-skilled immigrants are being left behind more than before. (See Kevin F. McCarthy and Georges Vernez, *Immigration in a Changing Economy*, MR-854-OSD/CBR/FF/WFHF/IF/AMF, Santa Monica, Calif.: RAND, 1997.)

Questions are also raised about the social integration of immigrants: Will they learn English, become citizens, and generally fit into American society? These social concerns are even more important to Europeans than they are to Americans. On balance, the evidence (although somewhat ambivalent) suggests that the key to social integration is education—a finding that underscores the importance of public investments in education. (See Robert F. Schoeni, Kevin F. McCarthy, and Georges Vernez, *The Mixed Economic Progress of Immigrants*, MR-763-IF/FF, Santa Monica, Calif.: RAND, 1996.)

Finally, proponents and opponents often focus on externalities, or the indirect effects of immigration that are felt over time. Proponents of immigration emphasize that immigrants are “self-selected strivers” from around the world; they cite the initiative and drive of immigrants as well as the diversity of their cultures as necessary for the reinvigoration of American society. Opponents question immigration's effects on social and political cohesion. They emphasize the ethnic composition of recent immigrants and how it differs not only from the native-born population but also from earlier waves of immigrants.

Arguments about externalities are often couched in the long term and, as such, are difficult to gauge. Answers are shrouded in uncertainty. Moreover, if the composition of immigrants changes, we can only know the impact of such changes over time. On balance, however, the historical record invites optimism.

## **Key Findings**

- **Immigration has both costs and benefits**
- **Balance varies:**
  - with the skill level of immigrants
  - by the state of the economy
  - across regions
  - over time
- **Positions on issues also vary by interest group**

Immigration clearly has both costs and benefits, depending on the skill level of immigrants, the state of the economy, and the region of the country. Moreover, these effects change over time. The public debate about these effects is further complicated by the fact that there are interest groups on every conceivable side of the issues. These groups are often very vocal in pushing for their position and make the task of distinguishing between public and private interests extremely difficult.

## Overview

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Although the current debate focuses on the issues just discussed, I believe there are two other trends that will play a growing role in debates about population growth in general and immigration in particular. I refer to these issues as “wild cards” because they seem to represent a reversal in what have been long-held attitudes toward the desirability of economic growth and technological change, and their significance may well increase in the future.

## **Malthus and the Desirability of Technological Change**

- **The neo-Malthusian argument (law of diminishing returns)**
- **Role of technology in changing the equation**
- **Arguing from the available evidence**
  - developed world
  - less-developed world
- **Changing attitudes toward technology**
  - green revolution vs. genetically modified foods

The first of these wild cards is a variant of the traditional Malthusian argument against population. The argument holds that over the long term, population growth will far outstrip the growth of available resources. The key assumption is that the supply of resources is fixed, and without any limit to its growth, population will increase more rapidly than resources and the population will eventually be impoverished.

What Malthus failed to realize is the role that technology can play in affecting productivity. From sails to windmills to solar panels, mankind has changed the organization of production so technology can increase productivity and total output. Thus, while Malthus' critics acknowledge the law of diminishing returns, they note that since 1798, the year Malthus wrote his treatise, both the population and the level of income in the developed world have increased multifold—exactly contrary to the theory.

This pattern is less clear, however, in the developing world. Certainly, rapid population growth has been an obstacle to economic development in developing regions. However, the critics of Malthus suggest that this finding is a by-product more of capital shortages and organizational problems than population growth per se. As evidence, these critics cite economies that are relatively less developed, such as those in Korea, Taiwan, and Mexico, that have flourished after they opened their economies to trade and capital.



The relationship between population growth and development is complex and the evidence is mixed. On balance, however, the evidence tends to support the technologists. Surely, technology's effect on productivity plays an absolutely essential role in the world's ability to adjust to population growth. Just look at how technology has enabled the United States to feed itself and other nations through highly productive agriculture.

In this context, it is important to consider a new derivative of the traditional Malthusian argument. Many neo-Malthusians today are increasingly skeptical about the effects of technological change. They emphasize the uncertainties surrounding new technologies and their potential negative externalities—e.g., global warming and the disappearing ozone shield. As a result, they are more inclined to view technological change with suspicion or outright hostility, compared with the dominant view just a few decades ago. Compare, for example, the almost universal acclaim that was accorded the green revolution of the 1960s with the current opposition to the introduction of genetically modified foods voiced in Europe and by some segments of the U.S. population today. In the former case, technological change in the form of new fast-growing grains and other foodstuffs was treated as an unmixed blessing that greatly relieved the pressures of rapid population growth. In the latter case, technological change in the form of genetically modified food is viewed as a potential threat despite its potential to help the developing world cope with rapid population growth.

I am simplifying the underlying arguments to make this point: Coping with population growth in the future will be even more difficult if large segments of the developed world view technological change as potentially threatening, rather than improving, the world as we know it. Because this growing skepticism about the effects of technological change represents such a departure from the historical pattern, it introduces a wild card to the policy debate.

## **Are Economic Growth and a Clean Environment Compatible?**

- **More evidence of antigrowth sentiment**
- **Public attitudes in developed countries strongly pro-environment**
- **Some question whether a clean environment and economic/population growth are compatible**
- **What is the appropriate balance and how might immigration affect this?**

Divergent views on the desirability of economic growth introduce a second wild card. Economic growth and population growth have traditionally been viewed as different facets of the same stone—and, because growth was good, the stone was a diamond.

More recently, however, the desirability of economic growth has been questioned primarily because of its presumed environmental effects. Indicators of antigrowth sentiment are abundant. Consider the proliferation of local growth and development curbs, the intensification of the NIMBY (not in my backyard) phenomenon, and the green movement's opposition to anything less than sustainability. The connection between development and immigration policy was never more obvious than in the recent debate about immigration policy within the Sierra Club that almost tore that organization apart.

This argument takes different forms, but its most extreme form can be summarized as follows: If population growth contributes to economic growth, by adding both to the productive capacity of the economy and to the demand for goods and services, and if economic growth inevitably harms the environment, then we should reject both economic and population growth. Environmental degradation is too high a price to pay for increasing prosperity.

The empirical evidence that addresses this argument is far from clear. Historical data from the developed world suggest that economic growth and environmental improvements are in fact compatible. Indeed, concern about environmental

quality seems to be a correlate of rising incomes. The evidence from the less-developed world is far more mixed. Again, it is unclear whether this divergence represents differences in organization and policy emphasis rather than direct evidence about the underlying relationships.

Attitudes about what constitutes an acceptable—indeed, required—level of environmental quality in the developed world have changed. The issue of whether environmental and population growth are compatible needs to be examined more fully since it is central to how we deal with the disparities between the developed and less-developed world. (See Lori M. Hunter, *The Environmental Implications of Population Dynamics*, MR-1191-WFHF/RF/DLPF, Santa Monica, Calif.: RAND, forthcoming.) Uncertainty on this issue is the other wild card in the immigration debate.

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I have focused my presentation on description rather than prescription. In conclusion, I would like to provide some perspective on these issues. This will not be in the form of prediction—I remember what Sam Goldwyn said: “Never make forecasts, especially about the future”—but rather, in the form of considerations we should bear in mind when we think about how to deal with these issues.

## Conclusions (1)

- **Difficult issues to resolve**
  - not simply a “demographic” problem
  - costs and benefits to every action
  - cannot resolve unilaterally
- **Public opinion should not rule; leadership is essential**
  - public attitudes fluctuate
  - simple answers are unlikely to solve problem
  - conflicting interests are inevitable

My first point is that the issue of how the developed world deals with the pressures for immigration from the less-developed world is going to be very difficult to resolve. Although these pressures are driven by demographic phenomena, they go considerably beyond demographics. Indeed, they go to the heart of what type of society we want and they address central questions about how we should allocate resources and what our society values.

Second, regardless of the approach the developed world adopts in an attempt to solve these issues, there are going to be benefits and costs, winners and losers.

Third, underlying my initial points about globalization, neither the United States nor the other developed countries can solve these problems unilaterally. We are part of an increasingly interdependent world and we must operate multilaterally. As a result, we should consider the consequences of what we do for the larger system of exchange in which we have a central stake.

Fourth, public opinion is poorly informed and, on this issue, especially volatile. Leadership is needed to frame the issue and clarify the benefits and costs, so that informed public opinion can direct the political process toward ends that will ultimately prove useful.

Fifth, the issues these phenomena raise do not lend themselves to simple answers. Immigration policy in this country has been a contentious issue. As a result, new policies are unwelcome because they are politically elusive. Immigration policy tends to stand for 10 to 20 years before the issue is addressed again. Because conditions change much more quickly than that, our policies are often out of step with economic and social realities. I believe it would be wiser to promote greater flexibility in immigration policies, allowing them to be adapted to changing conditions.

Sixth, the policy debate is certain to trigger a battle among many narrow, competing interests. We must be aware that it will not be easy to recognize who speaks for the public interest.

## Conclusions (2)

- **At root: question of values**
  - how we respond to change
  - how we define community

My final point concerns values. It is not often that someone who is trained as a policy analyst talks about values, but I believe that the root of most policy issues comes down to a question of values. The most a policy analyst can do is say, "If you take this course, these are the likely consequences—these are the costs and benefits." But whether one course of action is better than another is an issue that must be decided on the basis of an understanding of the priority of certain values over others.

In this context, I see two sets of values as crucial to how we seek solutions.

First, how do we view and respond to change? Listening to the immigration debate in the United States, I am struck by the number of people who would like to return to the "good old days." Even if the good old days were as good as some would like to believe (and that is uncertain), the world has changed. (See Michael S. Teitelbaum and Jay Winter, *A Question of Numbers: High Migration, Low Fertility, and the Politics of National Identity*, New York: Hill and Wang, 1998.) We can't go back. On the other hand, we have to be hard-headed and not simply view change as inevitable. We have to think about what is in our interest and try to shape change to serve those interests.

Second, how do we define community? I think this is part of what the no-growth phenomenon is all about. Do we define it narrowly or broadly? Between family at one end and the entire world at the other end there is an almost limitless number of possibilities. Where we fall on that continuum will make a big difference in how we respond to the problems we face in the future.

## **ABOUT THE AUTHOR**

Kevin McCarthy, Ph.D., is a senior social scientist at RAND. He has written extensively on immigration issues, including the causes and consequences of immigration trends in California and migration patterns within the United States. He has authored several publications exploring the problems immigration poses for the public and private sectors including studies of the economic progress of immigrants, the costs of immigration to taxpayers, and meeting the economy's labor needs through immigration. In addition, Dr. McCarthy has led several studies of demographic trends and their implications for such policy areas as education, employment, health and housing policy, and municipal finance.



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